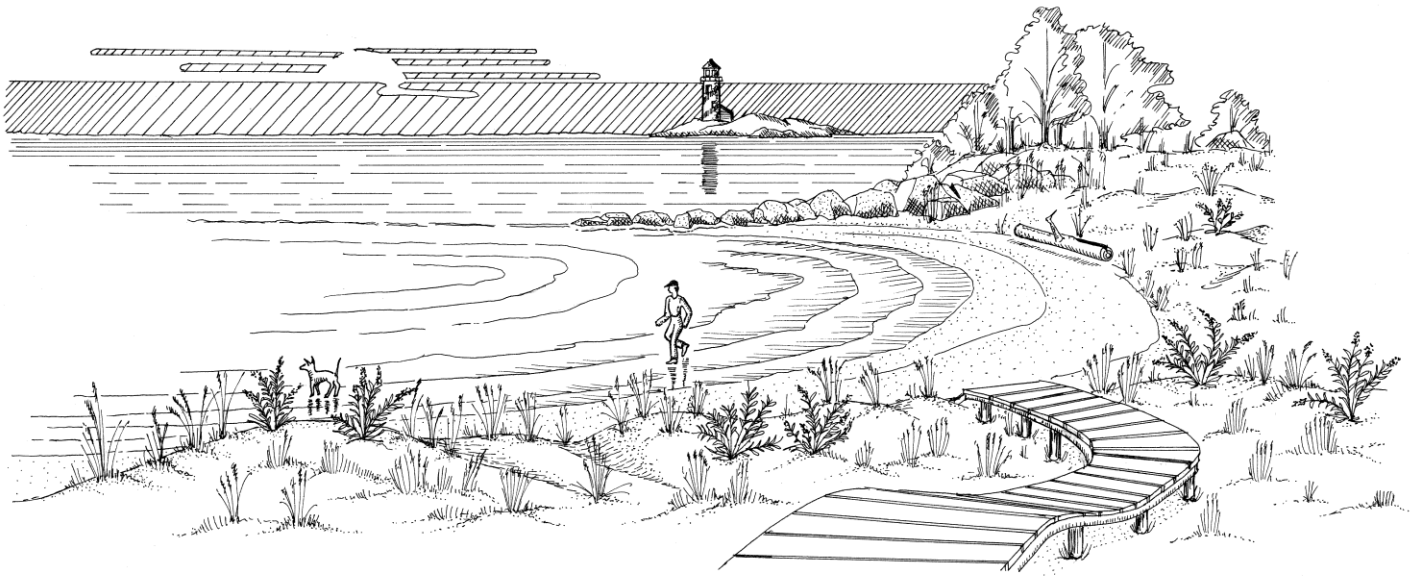
Draft
Connecticut Coastal and Estuarine Land Conservation Program Plan



Connecticut Department of Environmental Protection
Office of Long Island Sound Programs
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Hartford, CT 06106-5127

September 2010

Certification and Approval

This certifies that the *Connecticut Coastal and Estuarine Land Conservation Program Plan* is consistent with the federally-approved *Connecticut Coastal Management Program* and is adopted by the Connecticut Department of Environmental Protection pursuant to the *Coastal and Estuarine Land Conservation Program Final Guidelines* (June 2003) issued by the National Ocean Service, National Oceanic and Atmospheric Administration, Office of Ocean and Coastal Resource Management.

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Amey Marrella, Commissioner
Connecticut Department of Environmental Protection

Date:_____

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Connecticut Coastal and Estuarine Land Conservation Program Plan

I. Introduction

A. Program Background

The national Coastal and Estuarine Land Conservation Program (CELCP) was established by the Department of Commerce, Justice, and State Appropriations Act of 2002. It directs the Secretary of Commerce, through the National Oceanic and Atmospheric Administration (NOAA), to administer a federal financial assistance program available to coastal states for coastal land acquisition. The purpose of CELCP is to "protect important coastal and estuarine areas that have significant conservation, recreation, ecological, historical, or aesthetic values, or that are threatened by conversion from their natural or recreational state to other uses, giving priority to lands which can be effectively managed and protected and that have significant ecological value[1]." Available program funds are intended to be administered through a competitive state grant program by NOAA's Office of Ocean and Coastal Resource Management (OCRM) pursuant to the *Coastal and Estuarine Land Conservation Program Final Guidelines (2003)*. [2] Prior to 2007, CELCP funds were directed by Congress through federal agency appropriation bills rather than through a NOAA-administered competitive state coastal land acquisition grant program. Beginning in fiscal year 2007, CELCP funds were awarded through a NOAA-administered competitive state grant program which is expected to continue in future federal funding cycles. Notices of CELCP federal funding opportunities are usually issued in early winter with proposal due in early spring.

In order to receive CELCP coastal land acquisition funding through the NOAA-administered competitive state grant program, a coastal state must:

- Develop a state CELCP plan for approval by NOAA-OCRM;
- Solicit land acquisition project proposals (which may include acquisition of conservation easements) from stakeholders (e.g., coastal municipalities, land trusts, regional planning agencies, state agencies) consistent with the conservation priorities outlined in its CELCP plan;
- Nominate its highest priority coastal land acquisition projects for review by a national project review selection committee;
- Successfully compete against other coastal state land acquisition project proposals pursuant to a national CELCP project review committee's scoring and ranking of land acquisition project proposals.

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[1] Public Law 107–77

[2] Unless otherwise defined here, the *Guidelines*' definitions apply to the terms used in Connecticut's Coastal and Estuarine Land Conservation Program Plan (CELCP Plan). The *Guidelines*, currently being revised by NOAA, may be accessed at http://coastalmanagement.noaa.gov/land/media/CELCPfinal02Guidelines.pdf .

B. Purpose

Connecticut's CELCP Plan identifies the State's coastal land conservation needs used to help prioritize coastal land acquisition opportunities financed in part by federal CELCP grant funds. The Plan also outlines a process to promote partnerships with municipalities and land trusts to identify land acquisition opportunities that address Connecticut's priority conservation needs. Priority land conservation needs provide the basis for Connecticut's CELCP Plan. In addition to identifying Connecticut's priority coastal land conservation needs, the Plan provides guidance for selecting coastal land acquisition projects for nomination to a national state CELCP project selection committee that can successfully compete at the national level for limited federal funding assistance.

Coastal land acquisitions by the State of Connecticut are typically made on an ad hoc basis in response to acquisition opportunities offered to the Connecticut DEP by landowners or others who become aware of properties being offered for sale. Although this approach to coastal land acquisition has had many successes, important coastal land acquisition opportunities have been missed because they were not identified and acted upon early enough in the landowner's property disposition decision-making process. Connecticut's CELCP Plan provides a more proactive and strategic approach to coastal land acquisition. That general strategy is summarized here:

- Identify Connecticut's coastal land conservation values in greatest need of protection through land acquisition;
- Identify a land acquisition conservation target area to focus coastal land acquisition planning efforts in areas where acquisition opportunities are most likely to address priority coastal land conservation needs;
- Cooperate with coastal land acquisition partners to identify possible coastal land acquisition opportunities that meet a priority coastal land conservation need;
- Develop good working relationships with owners of high priority coastal conservation lands and gauge their interest in a conservation sale of their property;
- Identify land acquisition funding programs with objectives consistent with the conservation values on priority properties identified for possible acquisition. Cooperate with as many possible acquisition partners as possible who can contribute matching funds or land management services to leverage limited state and federal land acquisition funds;
- Develop land stewardship plans for newly acquired properties through partnerships with local land trusts and other land managers if state or municipal agencies holding title to acquisitions do not have the resources to effectively manage the land.

II. Coastal and Estuarine Land Protection Priorities

A. Connecticut's Coastal and Estuarine Area

Connecticut's Coastal and Estuarine Planning Areadefines the broadest area in which to evaluate potential coastal land conservation values and possible coastal land acquisition opportunities (see Section II. B. for a description of Connecticut's priority coastal land conservation values).

Connecticut has adopted the portion of its federally-approved coastal nonpoint source pollution management (CNPM) area within Connecticut's coastal watershed as its Coastal and Estuarine Planning Area (see Figure 1- Coastal and Estuarine Planning Area and Appendix 1 - Coastal and Estuarine Area Municipalities). The CNPM area was developed pursuant to Section 6217 of Coastal Zone Act Reauthorization Amendments (CZARA) of 1990[3], which required states with approved coastal management programs to develop coastal nonpoint source pollution control programs. This planning area was adopted in lieu of the Connecticut's federally-recognized coastal area, defined by Connecticut's coastal boundary (see Figure 2) because it more comprehensively captures the area within which potential land uses could adversely affect coastal water quality.

The three water quality protection-planning factors used to define Connecticut's CNPM area are also appropriate for identifying a Coastal and Estuarine Area. They include: (1) existing land uses likely to contribute pollutants of concern to Long Island Sound; (2) proximity to the Sound of those contributing land uses; and (3) existing condition of coastal waters, including both areas of impaired uses and those that might be threatened by future development or other pollutant-contributing land uses. Connecticut's CNPM area was determined to be appropriate to ensure implementation of CZARA required management measures to restore and protect Connecticut's coastal and estuarine waters. The CNPM area also captures the area containing all 13 categories of Connecticut's statutorily defined coastal resources (see Appendix 2 - Connecticut's Coastal Resources) and other coastal resources identified as a conservation priority through resource conservation planning initiatives (e.g., coastal forests identified through the LIS Stewardship Initiative). The *CELCP Final Guidelines* provide that a state's coastal watershed is the maximum allowable Coastal and Estuarine Area. Connecticut's coastal watershed [4] includes a 4,600 square-mile area within Connecticut, as shown in Figure 2. Connecticut's Coastal and Estuarine Area contains 2,073 square miles or 45 percent of Connecticut's coastal watershed. Connecticut's Coastal and Estuarine Area therefore is a reasonable area in which to evaluate possible coastal land acquisition opportunities that address Connecticut's priority coastal land conservation needs.

[3] 16 USC Section 1455

[4] Coastal watersheds are defined in NOAA's Coastal Boundary Review (1992) as the watershed area defined by the inland boundary of those USGS cataloguing units that contain the extent of tidal influence (i.e. head of tide).

Figure 1

Coastal and Estuarine Planning Area [need to eliminate portion of Windsor NOT within coastal watershed)

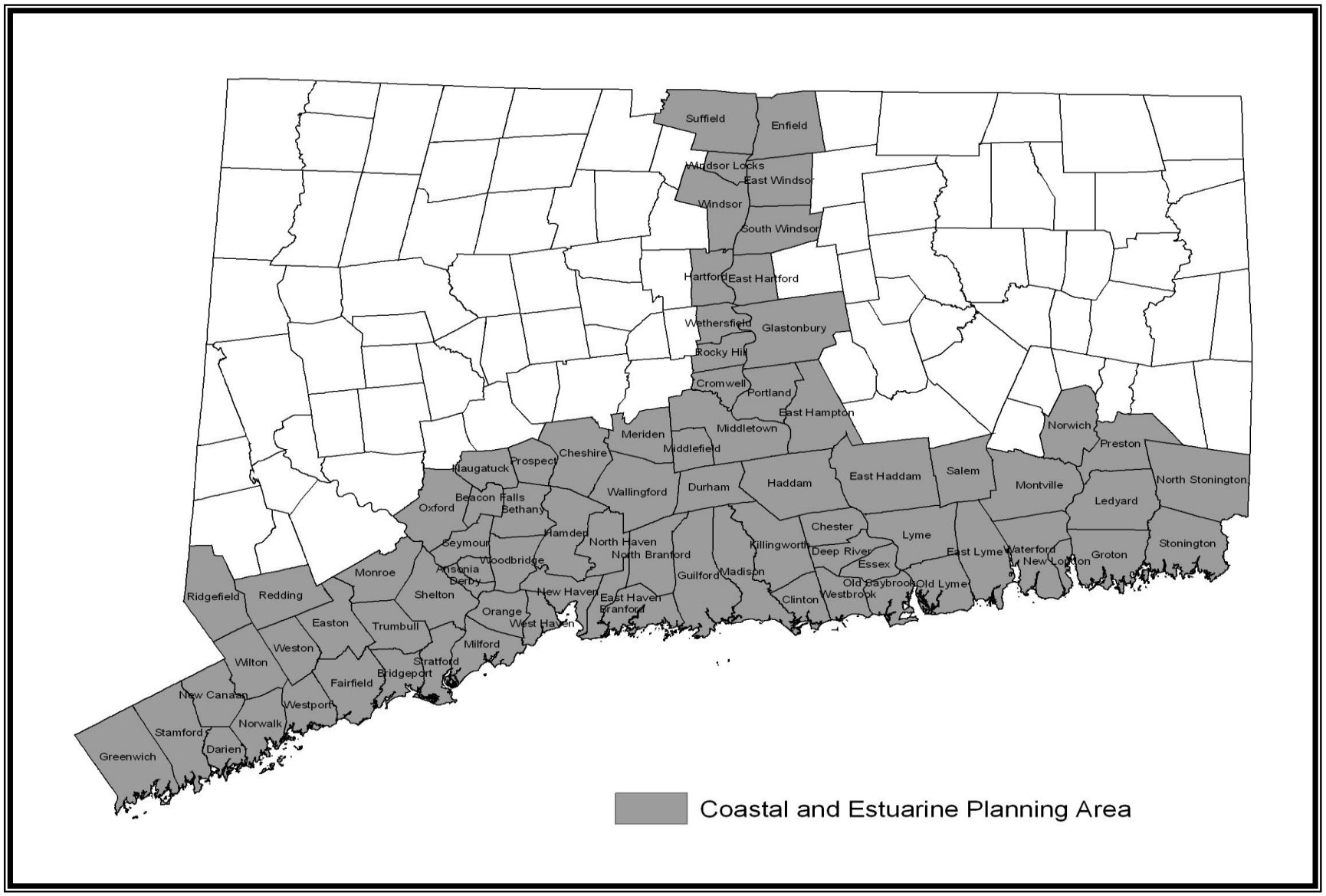
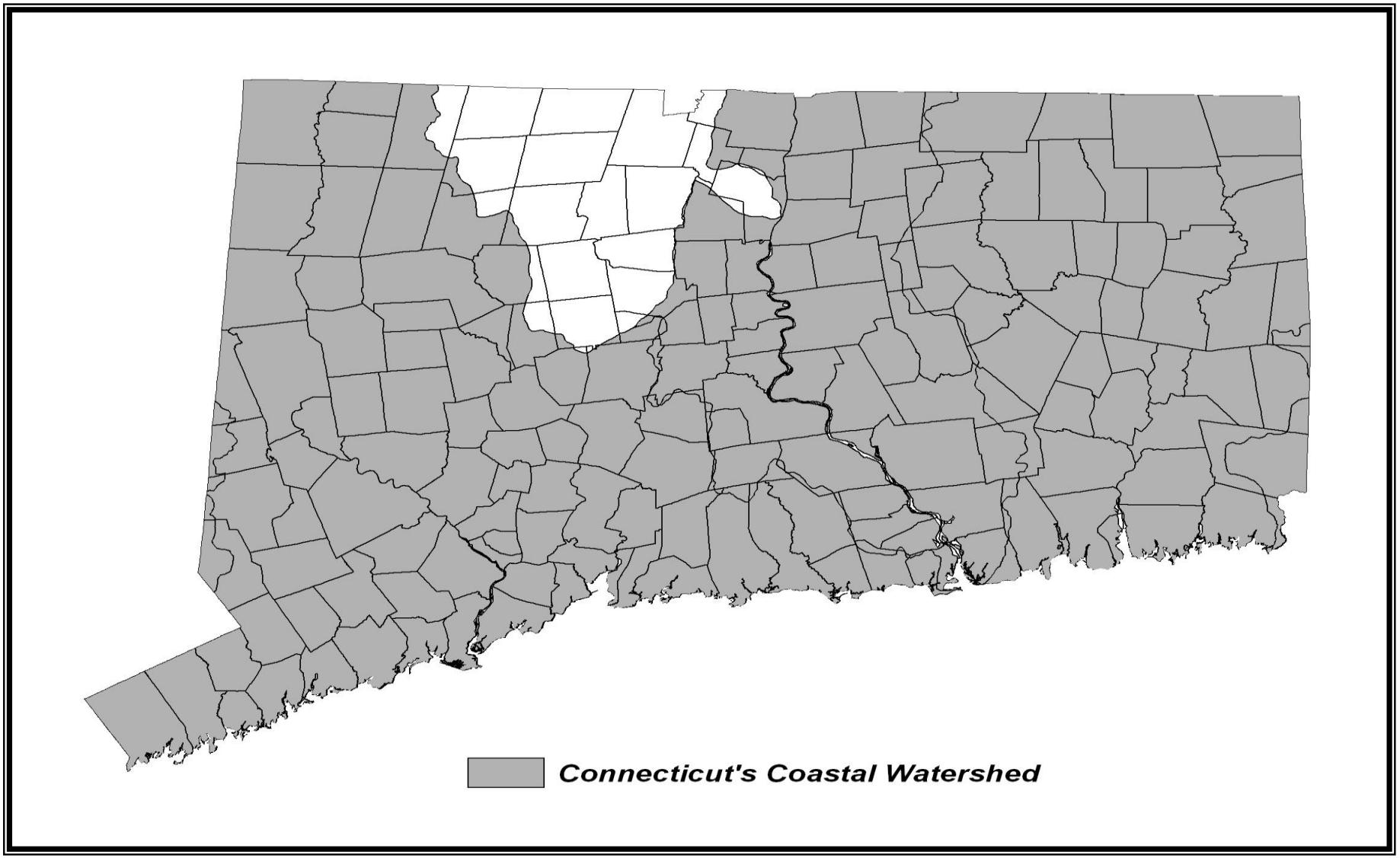


Figure 2
Connecticut's Coastal Watershed



B. Connecticut's Priority Coastal Land Conservation Values and Areas

B.1 Coastal Land Conservation Values and Areas

Connecticut's priority coastal land conservation values are the unique or significant qualities or benefits provided by areas with: (a) ecological significance; (b) existing or potential coastal recreation opportunities; and (c) other areas of exceptional or unique coastal conservation value. These conservation values, as further described below, serve as the basis for Connecticut's CELCP Plan and will be used to help identify the State's most critical coastal land conservation needs.

B.1.1 Ecologically Significant Areas

Connecticut's ecologically significant coastal areas are those areas: (1) typical or representative of Long Island Sound coastal systems; (2) providing outstanding examples of such systems; or (3) providing habitat for rare species or species qualifying for special management attention.

B.1.1.1 Coastal systems typical or representative of the Long Island Sound ecosystem

Preserving sites that provide good examples of Connecticut's coastal systems and landscape types is a conservation priority of Connecticut's CELCP Plan. Emphasis will be placed on acquiring parcels that include landscape types under-represented in Connecticut's system of existing protected open space including coastal state parks, preserves, wildlife management areas or protected conservation lands held by others. Preserving representative samples of Connecticut's coastal landscapes through acquisition is critical for future generations to study and understand Connecticut's coastal heritage because only remnants of many of these coastal systems remain intact. Table 1 provides a description of coastal systems, habitats, and landscapes typical or representative of Connecticut's Coastal and Estuarine Area and lists their conservation priority.

Table 1
Typical or Representative Coastal Systems of Long Island Sound[5]

Coastal Habitat/System/Landscape	Under-Represented in Existing System of Protected Open Space (✓)	Highest Conservation Priority (✓)
Barrier beach/dune[6]	✓	✓
Brackish/salt water tidal marsh*[7]		✓
Freshwater tidal marsh*	✓	✓
Rocky shorefronts		
Bluffs/escarpments (unarmored)	✓	✓
Estuarine embayments*		
Coves within estuarine embayments*		
Islands – Long Island Sound	✓	✓
Islands- riverine	✓	✓
Large unfragmented coastal forest**	✓	✓
Intertidal mud flats*		
Coastal area grasslands	✓	✓
Secondary dunes/back barrier sand flats***	✓	✓

[5] Not including subtidal resource systems (e.g., submerged aquatic vegetation, selfish beds, etc.) which are already held as S*tate public trust land

[6] Beaches and dunes designated as units of the Federal Coastal Barrier Resources System are the highest conservation priority within this class (see locations of these units for Connecticut at http://projects.dewberry.com/FWS/CBRS%20Maps/Forms/AllItems1.aspx

* Includes adjacent upland riparian areas

[7] [6] Only upland areas adjacent to these resources capable of supporting marine transgression are considered a highest conservation priority resource area

** Coastal forests are characterized by a vegetation pattern influenced by a climate regime affected by the moderating effects of Long Island Sound extending within 5 to 7 miles of the coast. On well-drained soils, coastal hardwoods often with dense thickets of vines and shrub dominate. Coastal hardwoods are dominated by Red (*Quercus rubra*), White (*Quercus alba*) and especially Black Oak (*Quercus velutina*), Hickories, especially Mockernut (*Carya tomentosa*), Black Cherry (*Prunus serotina*), and Sassafras (*Sassafras albidum*),) *(Dowhan and Craig, 1976).*

*** Back barrier sand flats are very gently sloping sandy unvegetated or sparsely vegetated intertidal areas on the landward side of barrier beaches

B.1.1.2 Outstanding habitats and systems representative of the Long Island Sound ecosystem

This class of ecologically significant areas includes those described in Section B.1.1.1 that provide outstanding examples of coastal systems because of their quality or scarcity in the regional landscape. Such areas offer the best examples of Connecticut's coastal landscapes, or are the last remaining examples of their kind, and therefore are a high priority conservation target. Table 2 provides descriptions and examples of these systems.

Table 2
Outstanding Coastal Habitats or Systems

Habitat/Ecosystem/Landscape Type	Site Example
Undeveloped LIS islands	Duck Island (Westbrook)
Unditched tidal marsh*	Nells Island (Milford)
Secondary dunes	Black Point Beach (East Lyme)
Undeveloped riverine cove/embayment*	Poquetanuck Cove (Preston/Ledyard)
Undeveloped LIS cove/embayment*	Wequetequock Cove (Stonington)
Sand plain grassland	Lower Quinnipiac River (North Haven)
Estuarine embayments with extraordinary aquatic habitat value* (e.g., shellfish/SAV)	Niantic River/Bay (East Lyme/Waterford)
Coastal forest	Barn Island WMA (Stonington)
Coastal grass land	Niering Natural Area Preserve (Waterford)
Traprock ridge	West Rock (New Haven/Hamden)
Colonial waterbird complex*	Falkner Island Guilford)
Sites of significant diadromous fish runs*	Hammonassett River at head-of-tide (Madison)

B.1.1.3 Habitat for rare species or species requiring special management attention

These sites provide habitat for species identified as: (a.)"rare" by virtue of being listed as Federally or State-endangered, threatened or species of special concern[8]; (b.) Greatest Conservation Need (GCN) pursuant to *Connecticut's Comprehensive Wildlife Conservation Strategy*[9]*;* or (c.) rated "near-threatened" or greater according to the IUCN "Red List".[10] Conservation emphasis is placed on sites with multiple species or high concentrations of a single species. As such, these sites are a conservation priority and in some cases could be acquired to

* Includes adjacent upland riparian area

[8] See State list at www.ct.gov/dep/lib/dep/wildlife/pdf_files/nongame/ETS04.pdf and Federal list www.fws.gov/northeast/endangered/

[9] See Chapter 4 of CT CWCS at www.ct.gov/dep/cwp/view.asp?a=2723&q=329520&depNav_GID=1719 and Figure _____(Critical Habitats within CT's Coastal and Estuarine Planning Area)

[10] See International Union for the Conservation of Nature and Natural Resources (IUCN) Red-List at http://www.iucnredlist.org/

solely meet ecological conservation objectives rather than supporting multiple uses including as unrestricted public access.

B.1.2 Coastal Recreation and Access

A hallmark of Connecticut's coastal management program is how it has enhanced public access to coastal waters for coastal resource-based recreation. Access opportunities range from sites providing visual access to coastal waters (e.g., scenic overlooks) to those providing direct physical aceses to with coastal waters for active recreational activities (e.g., boating access facilities). Areas providing or capable of providing coastal access for the following popular coastal resource-based recreation activities, particularly in areas underserved by existing recreational access facilities[11] and "distressed municipalities",[12] are a conservation priority:

- Car-top boating
- Shore-based fishing crabbing, or recreational shell fishing access especially those sites identified as an acquisition priority through coastal access surveys
- Passive recreation activities (e.g. hiking) in areas of significant or unique geologic or biologic interest or part of an existing or planned greenway, trail or linear park
- Wildlife observation (particularly birding) access areas identified through coastal access surveys
- Waterfowl hunting
- Sandy beach areas providing access to saltwater wading opportunities
- Urban waterfront sites with coastal recreation value (e.g., waterfront "pocket-parks" in high density residential neighborhoods) that meet a priority municipal recreation need (e.g., fishing access) as identified in a municipal recreation or conservation plan

B.1.3 Other Areas of Significant Coastal Conservation Value

Other coastal resource values or areas that meet a significant coastal land conservation need but are not specifically identified above as priority ecological or recreational values represent a "second tier" highly signficant of coastal conservation values including :

- Signficant foraging/nesting habitat for water birds, shorebirds, and migratory waterfowl including uplands adjacent to these habitats that provide protective buffers along to areas[13]

[11] Such under-served public access areas are identified in an analysis of geographic gaps in existing coastal public access along Connecticut's shore. See Appendix ___ for a figure describing such gaps (FORTHCOMING FIGURE BEING PREPARED BY KATIE/KEVIN based on work RPA

[12] Defined in Connecticut General Statutes Section 32-9p(b)

[13] See Appendix # - Waterfowl Concentration Area Map (forthcoming) and Atlantic Coast Joint Venture Waterfowl Focus Area map Appendix # and Focus Area descriptions (Appendix #) for partial list of concentration areas. Other areas not yet identified but documented as important may qualify as priority acquisition areas.

- Sites identified as a priority coastal resource restoration site pursuant to the Long Island Sound Habitat Restoration Initiative[14] for which public ownership is necessary to complete a proposed restoration project.
- Lands adjacent to and significantly contributing to value of coastal waters of exceptional quality or aquatic resource value (e.g., shellfish concentration areas and natural seed beds)
- Sites of statewide historic or cultural signficant value as confirmed by the Connecticut Office of the State Historic Preservation Officer or Office of the State Archaeologist
- Highly scenic areas visible from an area accessible to the general public (e.g., state or municipal parks, state highway, etc.) that contribute to defining a regional coastal landscape (e.g., Saybrook Point, Old Saybrook, Mystic Seaport from Interstate -95)
- Parcels adjacent to or within (i.e., in-holding) an existing CT DEP protected open space which, if developed, would significantly diminish existing or potential plant or wildlife habitat or create public lands management problems;
- Inland wetlands with significant or rare ecological/habitat value (e.g., highly productive vernal pools, fens, bogs);
- Sites capable of providing public access or habitat connections between existing protected open space.

B.2 Assessment of Need and Threats to Coastal Land Values:

B.2.1 The Need for Coastal Land Conservation

B.2.1.1 General need and obstacles to conservation acquisitions

From Connecticut's earliest colonial period, shoreline communities along Connecticut's coast served as principal centers for trade and commerce. Over 350 years of settlement history along Connecticut's coast has resulted in the conversion of much of the coastal area to uses that adversely affect coastal land conservation values. For example, it is estimated that approximately 30 percent of Connecticut's tidal wetlands have been filled and up to 90 percent may have been ditched or otherwise altered through human activity[15]. There is, therefore, a critical need to conserve the most significant remaining unprotected coastal areas capable of supporting important ecological functions and recreation activities.

Competition for use and development of Connecticut's coastal area continues to result in the diminution of priority land conservation values and lost conservation acquisition opportunities. Coastal area development and population densities exceed statewide averages reflecting these early settlement patterns. Connecticut's Coastal and Estuarine Program Project Area[16] is highly

[14] See Appendix 14 - LIS Habitat Restoration Sites Map

[15] *Tidal Marshes of Long Island* Sound, Bulletin No. 34, The Connecticut College Arboretum and U.S. Environmental Protection Agency, *Technical Support for Coastal Habitat Restoration*

[16] Connecticut's Coastal and Estuarine Land Conservation Program Project Area is the area within the Coastal and Estuarine Planning Area that is most likely to include Connecticut's priority coastal conservation values and areas as shown in Figure ____

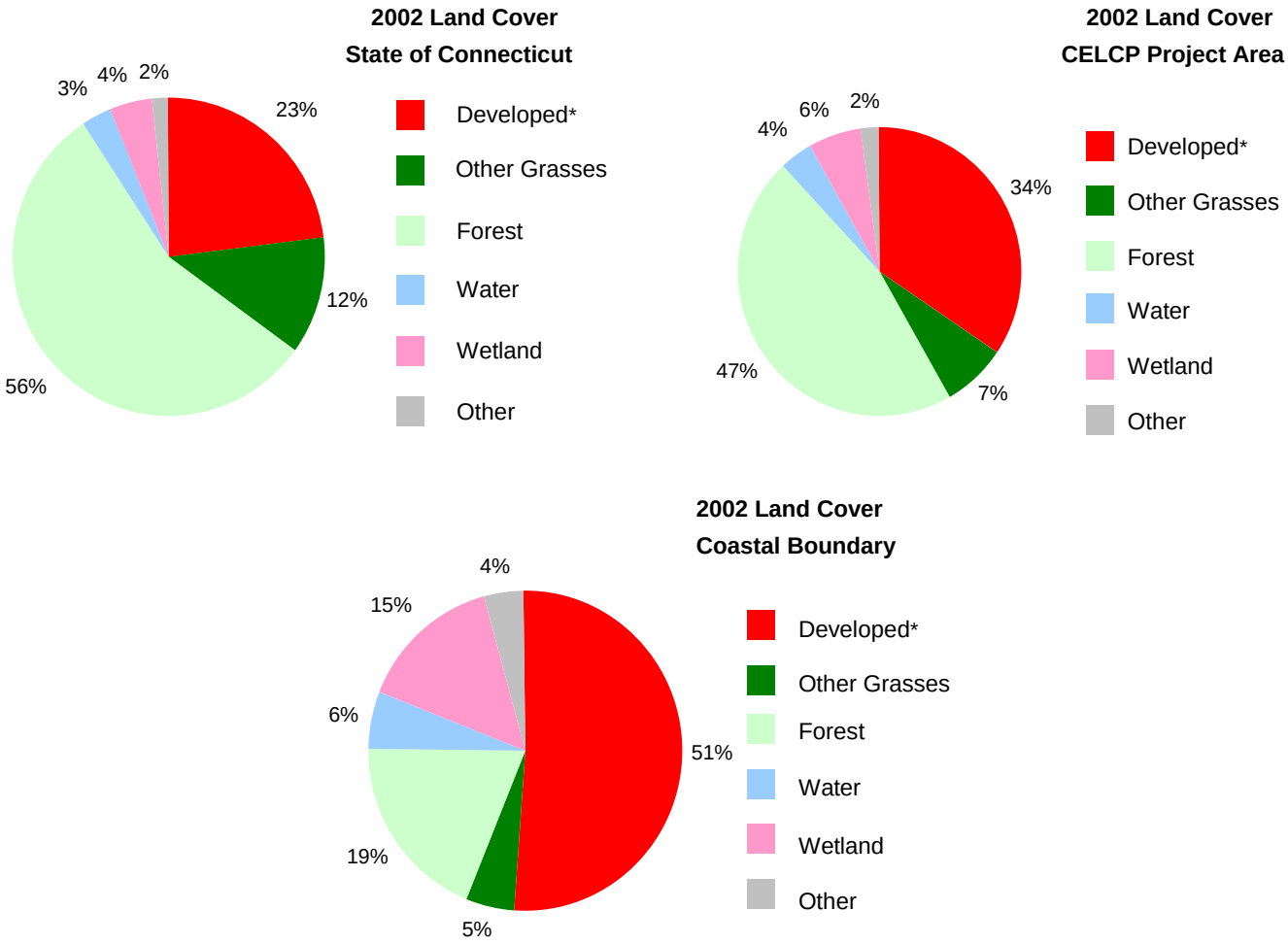
urbanized [see Figures 3, 4a and 4b]. For example, thirty-seven percent of the state's population resides within the State's 36 coastal municipalities, which comprise only 19 percent of the State's land area[17]. Further, 34% of the area within Connecticut's CELCP Project Area and 51% of the area within Connecticut's coastal boundary[18] is classified as "developed" land cover compared to 23% statewide[19]. These population density and land development statistics indicate that there is a critical need to assess Connecticut's most significant remaining coastal land acquisition opportunities that address priority coastal land conservation needs.

[17] 2000 Census data provided Connecticut Office of Policy and Management

[18] Connecticut's coastal boundary is generally defined by a line 1000 feet inland of a coastal water body or tidal wetland, whichever is further inland.

[15] University of Connecticut Changing Landscape Project (2003)

Figure 3
Connecticut Land Cover



* Developed land includes built areas containing impervious surface such as roads, parking lots, structures and maintained turf/grass (distinguished from the "other grasses" land cover) associated with commercial, industrial and residential uses

Source: University of Connecticut-CLEAR, *Coastal Area Land Cover Analysis Project*

Figure 4a.
Western Project Area 2002 Land Cover

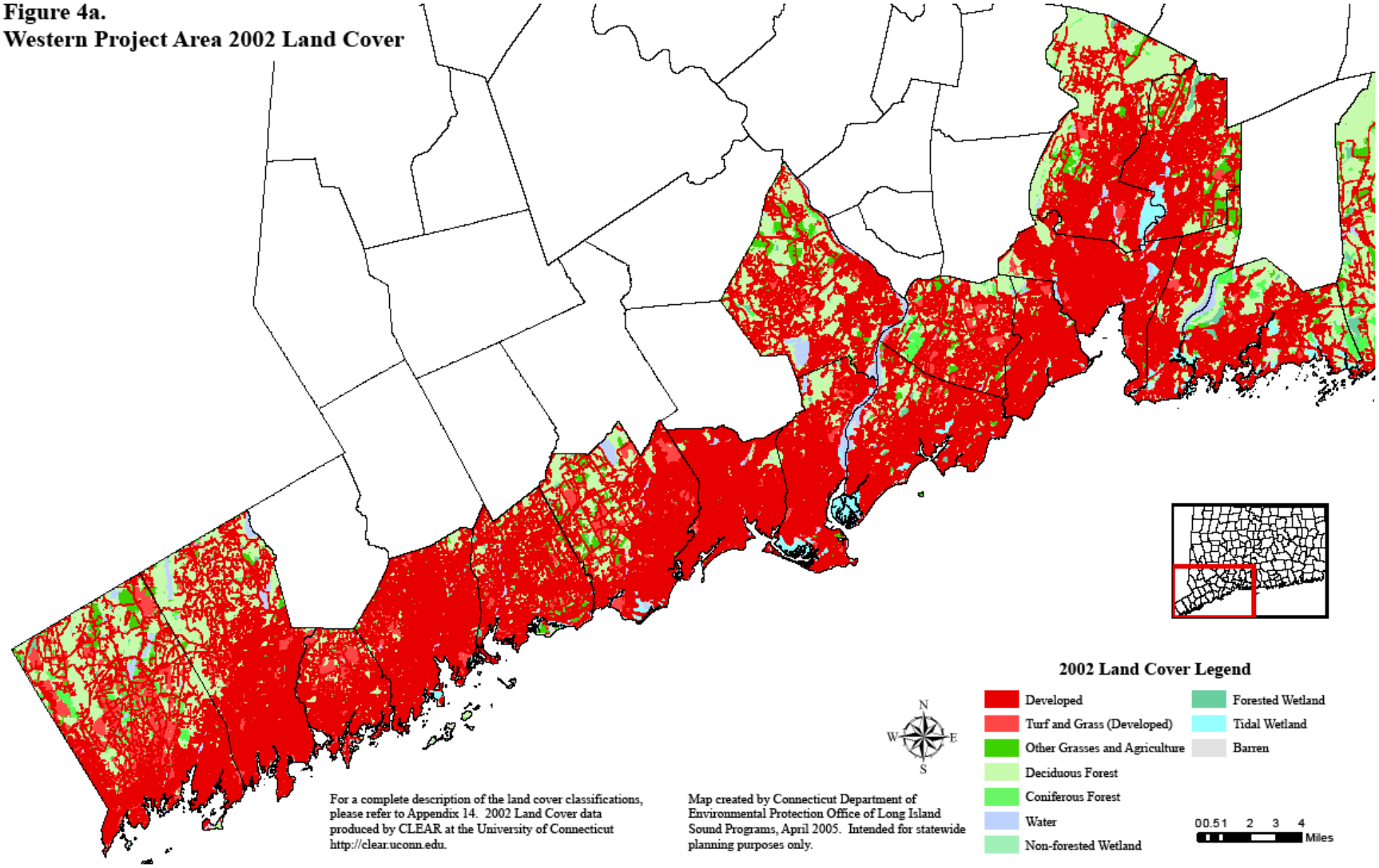
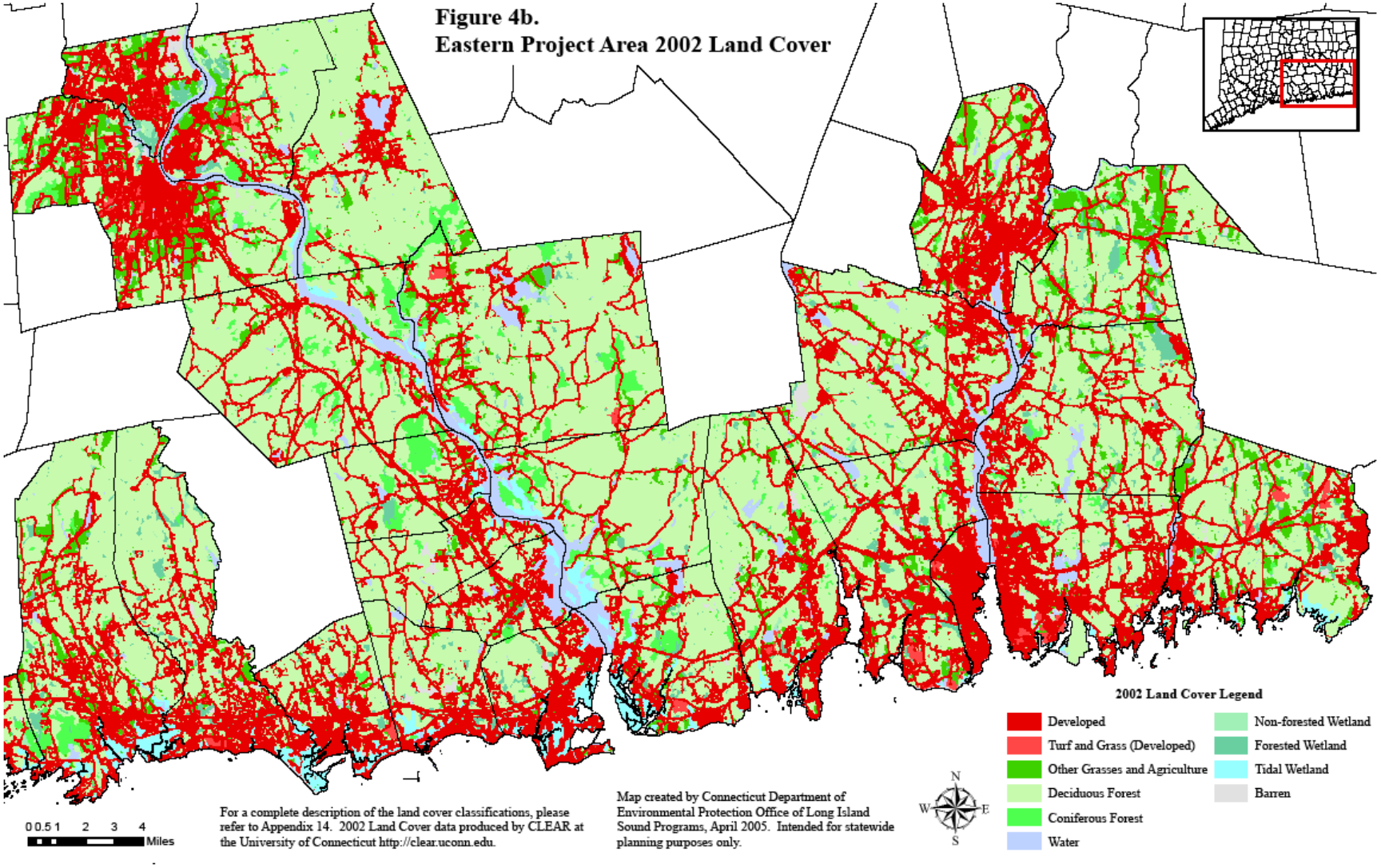


Figure 4b.
Eastern Project Area 2002 Land Cover



For a complete description of the land cover classifications, please refer to Appendix 14. 2002 Land Cover data produced by CLEAR at the University of Connecticut http://clear.uconn.edu.

Map created by Connecticut Department of Environmental Protection Office of Long Island Sound Programs, April 2005. Intended for statewide planning purposes only.

It is important to recognize that the Connecticut coastal land cover maps shown in Figures 4a – 4b depict land cover data at a statewide scale intended to show general patterns of coastal land cover at a moderate (i.e., 30 square meter) resolution. [See the University of Connecticut CLEAR project website <http://clear.uconn/edu> for more on land cover map scale data and resolution]. These maps are not intended for site level coastal land acquisition planning. For example, although the Western Connecticut Project Area 2002 Land Cover Map indicates that much of the near shore area in Western Connecticut Project Area is developed, important conservation acquisition opportunities may still exist in this region. When such opportunities arise, they will be given special consideration, to the extent they advance priority conservation values identified in Section II. B. of this Plan. When land cover data is projected at a larger scale and combined with other parcel-scale land conservation data, land that may warrant protection through acquisition, particularly for coastal recreation purposes, may be identified. However, it is expected that larger undeveloped parcels with significant ecological value are more likely to occur in the Eastern Connecticut CELCP Project Area. It is therefore within this region the Connecticut will likely identify its best remaining coastal land conservation opportunities.

Table 3 describes the extent to which land directly fronting on Connecticut's coast is protected or is still vulnerable to development threats based upon ownership. The Connecticut Shoreline Statistics Project, the results of which are summarized in Table 3, determined the length and ownership of Connecticut's coastal shoreline by class of shoreline and ownership. The project defined coastal shoreline as any land fronting on tidal waters up to Connecticut's statutorily defined coastal boundary. For the purposes of these statistics, coastal shoreline is classified according to the following types of coastal waters they abut or a unique type of shoreline including: (1.) Long Island Sound; (2.) bays, harbors and coves; (3) major rivers including their tributaries; (4.) minor coastal rivers; (5.) islands in Long Island Sound; (6.) islands within rivers; and (7.) shoreline created through artificial fill (such as filled piers, groins or jetties). Table 3 also describes the type of ownership for each of these classes of shoreline. These data indicate that 31% of Connecticut's total shoreline (1,065 miles) is held in protective forms of ownership or subject to conservation restrictions. The State of Connecticut (almost exclusively the Department of Environmental Protection) holds title to 13% of the State's shoreline, or 140 miles of protected shorefront.

Table 3
Connecticut Shoreline Statistics [1,2]

Ownership Class:	LIS Direct Miles[3]	B/H/C Miles[4]	Major River Miles[5]	Minor River Miles[6]	Island (LIS) Miles	Island (River) Miles	Artificial Fill Miles[7]	Total		Sandy Beach[8]	
								Miles	% of CT	Miles	% of CT
Protected: Public	**25**	**53**	**34**	**69**	**22**	**45**	**2**	**250**	***23***	**27**	***3***
Federal	0	12	2	2	6	0	0	22	***2***	1	***0***
State	9	13	26	45	2	44	1	140	***13***	9	***1***
Municipal	16	28	6	22	13	2	0	88	***8***	17	***2***
Protected: Private	**4**	**9**	**27**	**27**	**4**	**7**	**0**	**78**	***7***	**4**	***0***
Land Trusts	0	5	10	17	2	3	0	38	***4***	0	***0***
Utility	0	0	0	1	0	0	0	1	***0***	0	***0***
Churches	0	0	0	0	0	0	0	0	***0***	0	***0***
Private	3	4	12	7	2	4	0	33	***3***	2	***0***
Conserv Easement	1	0	4	1	0	0	0	6	***1***	1	***0***
Other	0	0	0	0	0	0	0	0	***0***	0	***0***
Total Protected	**29**	**62**	**61**	**96**	**26**	**52**	**2**	**328**	***31***	**31**	***3***
Unprotected	**84**	**157**	**160**	**227**	**60**	**24**	**25**	**737**	***69***	**57**	***5***
Total Shoreline	**113**	**219**	**221**	**323**	**86**	**77**	**27**	**1065**	***100***	**88**	***8***

[1] Protected shoreline is land, classified as protected open space, fronting on coastal waters, including rivers within Connecticut's coastal boundary. Protected open space is defined as land or an interest in land held for the permanent protection of: natural features of the state's landscape, essential habitat for endangered or threatened species, non facility-based outdoor recreation (does not include ballfields, cemeteries, school grounds, etc.), forestry and fishery activities, and other wildlife or natural resource conservation or preservation purposes.

[2] All measurements are rounded to the nearest tenth of a mile

[3] LIS Direct = Direct Long Island Sound frontage not including frontage on bays, harbors, coves, or the mouths of rivers, on Long Island Sound.

[4] B/H/C = Bay, harbor, cove frontage on Long Island Sound.

[5] Includes coastal (i.e. saltwater influenced) segments of the Housatonic, Connecticut Thames Rivers, and their tributaries up to Connecticut's statutorily defined coastal boundary. (For example, frontage on the Eight Mile River, a tributary to the Connecticut River was included in major river shoreline frontage.) Major river shoreline frontage includes coves within major rivers. Frontage on watercourses that originate in tidal wetlands were excluded from all shoreline frontage calculations.

[6] All coastal (i.e. saltwater influenced) rivers not classified as major rivers up to Connecticut's statutorily defined coastal boundary.

[7] Shoreline created through the placement of fill material in coastal waters that can be readily identified, such as artificial shoreline perpendicular to the course of the natural shoreline. This does not include existing transportation infrastructure such as railroad causeways.

[8] Sandy beach shoreline occurs within several shoreline types in this table, but is reported separately because it is a significant ecological and recreational resource in Connecticut.

Much of Connecticut's coastal area not already protected through public or private non-profit land conservation organization ownership is developed[20]. An assessment of the larger remaining undeveloped and unprotected parcels within 32 of Connecticut's 36 coastal municipalities indicates that only 78 undeveloped parcels greater than 25 acres exist within 1,000 feet of coastal waters (see Appendix 3-Coastal Land Assessment Methodology Results). Of these, approximately 50 may have significant conservation value warranting further investigation for protection through fee simple or conservation easement property interest conservation.. These larger undeveloped parcels are also expected to be highly desirable for future residential development. Once acquired by those with future development expectations, particularly if they have begun the municipal land use permit application process, it is often difficult to acquire these properties for conservation purposes at a price approximating their pre-permit approval appraised value.

Very few undeveloped waterfront or near-waterfront properties on Long Island Sound, including coves and major tributaries (e.g., Connecticut River), are placed on the market each year in Connecticut. Those that are tend to be small (less than 10 acres) and typically command sales prices exceeding $200,000 per acre for developable lots with water views and over $1 million per acre for properties with direct water frontage (2000-2004 sales data). Due to a shortage of readily developable land and increasing demand, prices of waterfront properties have shown dramatic increases (personal communication, Chris Miner, Miner and Silvertein Appraisal, LLP)

Four CELCP Project Area (see Figure 5 for a description of this area) properties greater than 10 acres with water or tidal marsh frontage were acquired by CT DEP for conservation purposes between 2001 and 2007 (see Table 4). These properties were acquired at per-acre acquisition prices ranging from $9,715 to $228,689. Although the number of coastal acquisitions described here, one of which contained significant development restrictions (e.g., un-buildable tidal marsh), is insufficient to accurately represent typical coastal area land values with a high degree of confidence, this limited sample of coastal area conservation acquisitions is consistent with the generally accepted assumption that it is land conservation through acquisition is more difficult to accomplish with limited state conservation funds near the coast.

Table 4
2001-2009 CT DEP Coastal Project Area Land Acquisitions with Water/Marsh Frontage[21]

Property Name	Town	Purchase Date	Purchase Price ($)	Size (Acres)	$/Acre
Verkades Nursery	Waterford	2002	3,800,000	157.2	24,173
Camelot Cruises	Haddam	2003	1,350,000	17.4	77,586
Camelot Cruises	Haddam	2003	2,790,000	12.2	228,689
Barn Island WMA	Stonington	2003	1,400,000	144.1	9,715
Barn Island WMA	Stonington	2009	920,000	48.0	19,167
East River Marsh WMA	Guilford	2010	360,000	48.0	7,500

[20] "Developed" is defined as built areas typically associated with commercial, industrial and residential uses containing impervious surface such as roads, parking areas and structures and also includes maintained turf/grass.
[21] Does not include coastal project area conservation acquisitions by others funded in part by CT DEP.

Compared to an average DEP acquisition cost of $3,339 per acre for 158 inland land acquisitions for the period 2000 to 2004, it can be difficult to justify allocating limited state land acquisition funding for coastal area land acquisitions.

The most significant impediment to acquiring coastal land with high conservation value is the gap between available coastal land acquisition funding and the acquisition cost of such properties. However, an equally significant impediment to effective state coastal land acquisition is the lack of a comprehensive evaluation of the most significant remaining coastal land acquisition opportunities that meet identified coastal land conservation needs. This is particularly problematic when planning to conserve *potential* rare species habitat believed to be most imperiled. Unfortunately, opportunities to acquire such lands are often only identified when a significant property is proposed for development or sold to a developer. Developers sometimes acquire such properties in speculation of an increase in the property's value upon obtaining the necessary municipal land development permits. They then often attempt to maximize the potential value of lands by proposing development plans or uses for the property that are more intensive than the uses allowed "as-of-right" by municipal zoning regulations. Typically, this requires that the developer apply to a municipal zoning agency to re-zone the property or to apply for a special use permit to develop the land beyond its existing permitted uses to maximize the rate of return on their investment in the property. Such an investment includes costs associated with: (1) identifying parcel(s) of land needed to execute a development concept; (2) negotiating the land acquisition; (3) "holding costs" such as options, debt service, and real estate taxes; (4) designing its development (e.g., engineering services); and (5) obtaining permits to develop the property. Once these costs are incurred and the value of the property increases to reflect the uses allowed by "up-zoning" the property or upon issuance of development permits, the price at which the developer will part with the property increases significantly, often eliminating opportunities for a conservation acquisition. Several recent DEP coastal land acquisitions listed in Table 4 and other forgone acquisition opportunities occurred after properties were sold or "optioned" to developers or permitted for development. By identifying priority coastal land acquisition opportunities and negotiating land acquisition deals with landowners before they sell to developers or begin the development permitting process, DEP and other coastal land conservation partners can more effectively use limited land conservation acquisition funds to conserve lands that meet State coastal land conservation objectives.

B.2.1.2 Need for coastal recreation opportunities

There are approximately 300 public access sites providing a range of coastal recreation opportunities along Connecticut's coastal shoreline. Of these sites, approximately 75% are either small municipally-owned (less than 10 acres) or privately-owed sites (less than 1 acre) open to the public access through public access easements or other legal requirement through municipal land use commission permit conditions at privately-owned shoreline developments (e.g., subdivisions). About 20% of the coastal access sites are larger state-owned properties (e.g. State Parks), while relatively few (5%) properties are private non-profit land conservation organization holdings or a unit of the Stewart B. McKinney National Wildlife Refuge, the only federal agency property available to the public for coastal recreation. However, the number of coastal sites is not an entirely accurate indicator of the extent of Connecticut's shoreline accessible to the general public. That is, the number of public access sites does not describe the miles or percent

of Connecticut shoreline available for public use or degree to which Connecticut's shoreline is under protective ownership (for statistics describing Connecticut's shoreline ownership, see Table 3 Shoreline Ownership Statistics). Nor do these shoreline access statistics indicate the quality of shoreline recreation experience at public access sites or whether the sites can accommodate some of the most popular coastal recreational activities (e.g., saltwater bathing, boating access, saltwater fishing, wildlife viewing.).

Demand for many of the state's most popular coastal recreational activities such as swimming, boating, shore-based fishing and wildlife observation will likely continue to exceed the capacity of existing coastal recreation areas to accommodate these uses. Opportunities for new public saltwater swimming beaches are limited because there are few significant lengths of sandy beach not already under public ownership or operated by a private beach association. These factors, and the proximity of several of the state's most densely populated metropolitan areas to the coastline, are expected to continue to result in significant demand for coastal recreation opportunities at Connecticut's shoreline parks. Two of the state's four coastal parks offering saltwater swimming beaches periodically must turn away prospective patrons by mid-day on summer weekends when parking lots meet capacity. Similarly, municipally owned shoreline parks providing saltwater swimming opportunities are operating near capacity during summer weekends. State boat-launching facilities on coastal and tidal waters are also consistently unable to meet the public's boating access needs on summer weekends. Of the 13 state-owned boat launch ramps located directly on Long Island Sound, four routinely turn away boaters on popular summer weekends due to parking space limitations (personal communication, DEP Bureau of Outdoor Recreation, State Parks Field Operations Division).

Pursuant to a 2002 NOAA-OCRM national effectiveness study of state coastal public access programs, coastal states were encouraged to conduct needs assessments of coastal land conservation and public access enhancement priorities. The study urged states to use the results of such needs assessments to target agency resources based upon the results of such assessments. In 2004 Connecticut conducted a coastal public access needs assessment. Over 1,000 surveys were distributed to members of coastal recreation user groups and individuals with an interest in coastal recreation to identify public access facilities needs and the recreation habits of saltwater anglers, waterfowl hunters, marine boaters and wildlife observation enthusiasts. The principal purpose of the survey was to assess whether existing coastal recreation facilities in Connecticut are meeting demand for these popular recreation activities and how these facilities could be managed to better meet user needs identified through the surveys.

Table 5
Demand for Coastal Public Access by Type of Activity

Recreational Activity	% Indicating Additional Access Needed	% Crossing Private Land to Access Shore
Wildlife Observation	81%	N/A
Boating Access	83%	N/A
Saltwater Angling	N/A	36%

The survey responses are summarized in Table 5 by type of recreational activity[22]. The survey results indicate there is a strong need to acquire new sites capable of accommodating these coastal recreation activities.

B.2.2 Threats

B.2.2.1 Threats to Connecticut's coastal conservation values

Human disturbance, particularly through new residential development, is the principal threat to Connecticut's remaining unprotected coastal lands with significant ecological value. In waterfront areas well-suited to meeting Connecticut's priority coastal recreation needs, if such development is not properly managed through the regulatory process to secure coastal public access, opportunities to meet demand for coastal recreational opportunities such as canoe/kayak and marine angling are lost. The following describes the principal threats to Connecticut's highest priority coastal conservation values and provides context for developing strategies to identify and acquire sites that support those values most appropriately conserved through a combination of land acquisition and other coastal resource conservation practices.

B.2.2.2 Threats to ecological values

Human encroachment and disturbance within the coastal area in recent decades has resulted in declines in its living resources and the loss or degradation of essential estuarine and coastal habitats. The extinction and extirpation of several species of plants and animals in this area and population declines of others, and consequent biological diminution of the region, can be attributed to many factors. Historically, prominent factors included the destruction of natural habitats through dredging, filling, ditching, and draining of wetlands associated with the construction of transportation infrastructure. However, the enactment and improved administration of regulatory programs governing such activities since the late 1970s has greatly reduced the impact of such factors. Despite strict controls and conditions placed on permits for

[22] Saltwater swimming, a highly popular coastal recreation activity, was not included in the survey because existing information already confirms that demand for this activity exceeds the capacity of existing facilities to meet demand. Further, a lack of available sites to develop new salt water swimming facilities (e.g., state or municipal parks) precludes the need to investigate establishing new saltwater swimming facilities.

coastal area residential development and attendant ancillary shoreline structures (e.g., docks, piers, bulkheads etc.), cumulative and secondary impacts associated with such development often fragments habitat (U.S. Fish and Wildlife Service, Northeast Coastal Areas Study and personal communication with DEP-Geological and Natural History Survey staff). New threats to coastal resources, particularly threats to tidal marshes, such as sea-level rise, also need to be considered when identifying coastal land acquisition opportunities to preserve coastal ecological values.

B.2.2.2.1 Foraging/nesting habitat for water birds, shorebirds, and waterfowl

Human disturbance of foraging and nesting habitat for water birds, shorebirds, and waterfowl often associated with public recreational use of critical coastal areas has in some coastal areas resulted in abandonment and limited productivity of these important habitats (e.g., coastal mudflats, sandy beach nesting areas). In some cases, species of continental or global conservation concern are being affected. Development along coastal, estuarine, and contributing upstream areas is believed to alter hydrologic regimes in essential habitats, such as tidal marshes, resulting in displacement of native plant species by invasive species and the degradation of water quality in shallow water habitats such as obstructed coves. Activities that disturb waterbird colonies in Long Island Sound during the nesting period (mid March to August), including significant pedestrian traffic, low flying aircraft, recreation vehicle use (e.g., boat landings and nearby boat traffic), significantly impair habitat. Freedom from human disturbance while early spring roosts are established and maintained may also be critical to colony use in the ensuing breeding season.

B.2.2.2.2 Undeveloped coastal islands/riparian areas/coastal forest

Undeveloped coastal areas providing significant fish and wildlife habitat, including coastal islands, key riparian habitats and coastal forests that significantly contribute to water quality in estuarine embayments, are being developed, placing these important coastal resource areas increasingly at risk. Residential development at waterfront and marshfront sites frequently lead to proposals for shoreline alterations such as flood and erosion control structures and docks that exacerbate the impacts of such development. The development of off-shore islands adversely affects colonial waterbird and shorebird populations by reducing the number of limited feeding and resting areas on which these populations depend, especially during migration. Off-shore islands and other *marginal sites*, such as bluffs and escarpments, previously thought to be immune to significant development pressure because of the difficulty associated with developing these areas, are increasingly being evaluated as developable land. Where such marginal sites have not been developed or only moderately developed in the past, they are increasingly being evaluated to accommodate residential development including ancillary structures (e.g., docks, utility lines and on-site sewage disposal systems) that can adversely affect coastal resource values. Removal or disturbance of vegetation and direct loss of habitat through development on coastal islands has a significant impact on colonial nesting water bird populations in the Long Island Sound. Disturbance or elimination of preferred wetland feeding areas may also affect birds nesting on the islands. Introduction or attraction of mammalian predators, including pets

that are attendant with residential development, into nesting areas is also detrimental to the colonial bird populations.

B.2.2.2.3 Undeveloped coves, estuarine embayments and tidal rivers

As indicated above, much of Connecticut's coastal area has been developed. Developed land cover is especially prevalent in waterfront areas (see Figures 4a and 4b). The lack of available developable land fronting on open waters of Long Island Sound has caused developers to increasingly evaluate the development potential of lands with frontage, views and access to waters on coves, estuarine embayments, tidal rivers and their associated marshes, principally for residential development. Parcels of land with such attributes are believed to have potential for significant appreciation in value and marketability (personal communication, Chris Miner, Miner & Silverstein Appraisal Company). However, development of such parcels, particularly within riparian areas, can adversely affect the ecological value that coves, embayments and tidal rivers provide, particularly if the development is not properly sited and designed to maintain those ecological values. These areas are particularly valuable as nursery habitat for commercially and recreationally important fish species and provide essential habitat for all or part of the life cycle of many forage species on which other fish species depend. Development activities that degrade the water quality of rivers, brooks, and ponds and wetlands that are part of these critical sub-estuary systems impairs the biological productivity of Connecticut's coastal area as a whole.

B.2.2.2.4 Diadromous fish migration corridors

Diadromous fishes are species that migrate between freshwater and saltwater habitats. Some species migrate only short distances inland from Long Island Sound while others penetrate a great distance to the hills and mountains of interior Connecticut and New England. The streams, lakes, and ponds through which these species migrate are known as riverine migratory corridors. Modifications to these corridors—mostly by human development such as dams—have created barriers to migration and resulted in partial or complete extirpation of populations of diadromous species. The degree of extirpation varies depending upon the species involved, the habitat, and the nature of the development. The restoration of these populations is a high priority but cannot always be realized unless these barriers are removed. Solutions, usually involving dam removal or fishway construction, can be complex when structures are owned by parties unwilling or simply not interested in cooperating in removing these barriers. Often the best approach is for the site to be acquired by an interested party that will then work with a partnership to provide a solution.

Lands critical to the effective management and restoration of diadromous fish are not limited to fish passage projects. Other locations are critical to the well being of these species that need to be protected from degradation or uncontrolled harvest. Such sites are often located at the head-of-tide, the upstream terminus of saltwater penetration, or at a physical constriction in an estuarine embayment or river system. Physiological and behavioral activities in affected species often occur in these areas. Therefore, the protection of these key parcels through conservation acquisitions are sometimes the most appropriate management action for conserving diadromous fish runs. (personal communication, Steve Gephard, CT DEP-Fisheries Biologist).

B.2.2.2.5 Tidal wetland and associated riparian buffer areas

Tidal wetlands are especially vulnerable to development activities that disrupt or reduce tidal exchange within these systems or disturb the wetland's adjacent upland riparian areas. Because there are few large waterfront parcels available for residential development, developers are interested in identifying larger parcels with frontage on tidal marshes that provide views of marshes and open water for residential development, placing these critical coastal resource areas increasingly at risk. Although Connecticut's Tidal Wetlands Act and Regulations provide significant protection for this important coastal resource from filling, excavation or other direct disturbance, these laws do not regulate development within riparian areas adjacent to tidal wetlands. Further, some activities affecting tidal wetlands, such as the construction of docks, although regulated to avoid or minimize direct impacts, can pose potential indirect impacts such as habitat fragmentation and tidal wetland shading. Impacts to tidal wetlands associated with development within tidal wetland riparian areas include removal of riparian vegetation that provides important wetland habitat and benefits. Riparian area development also can result in unauthorized and often undetected minor encroachments into wetlands often associated with residential development activities such as construction of ancillary support structures (e.g., sheds, gazebos, etc.), landscape retaining walls and disposal of yard debris at the wetland/riparian fringe. Adverse impacts from such activities can include obstruction of culverts that provide tidal water exchange between tidal wetlands and tidal creeks and rivers. Removal of riparian vegetation diminishes its ability to effectively filter pollutants from stormwater prior to discharge to coastal waters and marshes and diminishes the wildlife value these areas provide. A more recent generally accepted threat to tidal wetlands is an accelerating rate of sea level rise. One upper range sea-level rise forecast for the Northeast seaboard by the year 2100 due to global warming predicts that mean sea-level will increases by 1.5-meters (4.9 feet) . Additional increases are expected from the melting of terrestrial based ices such as Greenland and West Antarctica. Regardless of the absolute rate of sea level rise, increased rates of sea level rise will threaten tidal wetlands if upland areas adjacent to tidal marshes do not provide appropriate conditions to support the inland migration of these marshes. Accommodating the phenomena of marine transgression will require support for management initiatives such as identifying potential tidal marsh refugia sites.

B.2.2.2.6 Estuarine embayments with extraordinary aquatic habitat value

Estuarine embayments with exceptional water quality, especially those supporting extraordinary aquatic habitats, provide critical ecological values that are particularly vulnerable to degradation.

For example, eelgrass beds and other submerged aquatic vegetation (SAV) are particularly sensitive to water quality degradation from development within local coastal drainage basins, especially if riparian areas are disturbed. Maintaining water quality, particularly water clarity for light penetration to SAV beds such as eelgrass, are critical to maintaining scallop and hard clam fisheries. Development within coastal forests that contribute to water quality within estuarine embayments, particularly within riparian areas, often increases pollutant loads from stormwater runoff and creates on-site sewage disposal system discharges to groundwater. These discharges increase nitrogen loads and phytoplankton growth, thereby reducing water clarity light penetration within the water column that in turn adversely affects the health and abundance of SAV.

B.2.2.3 Threats to coastal recreational values

B.2.2.3.1 Car-top (e.g., canoe and kayak) boating access

As previously indicated, surveys of non-motorized boaters indicate there is significant unmet demand for car-top boating access facilities, especially within the lower Connecticut River region and areas where existing launching facilities are restricted to municipal residents, particularly along western Long Island Sound. Limited public land and extensive development along many parts of Connecticut's shoreline make it difficult to acquire or develop new sites for "car-top" boating access facilities. Providing additional car-top boating access facilities within coves and other popular "back-water" paddling areas of Connecticut's major tidal tributaries (e.g., Connecticut, Quinnipiac, Thames Rivers) is a significant challenge. Competition for facilities (e.g., parking and launch facilities) for launching large power boats and small "car-top" boats at existing state boat launches create user conflicts and facilities management problems. Although demand for such facilities is significant, it is extremely difficult to acquire and develop properties for boating access capable of accommodating this use and where there is neighborhood support for developing new boating access facilities. Another significant threat to car-top boating access is the policy of some towns to limit use of their boat launches to town residents only or making access to town launches prohibitively expensive to non-residents.

B.2.2.3.2 Trailered boat access and parking

Limited opportunities to acquire new sites well-suited to providing new trailered boat launch facilities (i.e., sufficient water depths and space for trailer parking) and neighborhood opposition to the development of new or expanding existing boating facilities have prevented DEP from meeting demand for additional boating access facilities. This situation is being exacerbated by the closing and conversion of small-boat marinas to residential uses that previously offered boat launching services to the public.

B.2.2.3.3 Shore-based fishing/crabbing/shell-fishing areas

A 2004 DEP survey of shore-based marine anglers indicated that 36 percent of surveyed respondents cross private lands to access shore-based fishing areas. These informal fishing and crabbing access areas, used by the public through custom and the goodwill of the landowners,

are being lost as coastal waterfront property is developed or sold to others who prohibit public use of their shoreline property. Similarly, recreational shellfishing is threatened by shoreline access restrictions and shellfish bed closures due to water quality impairments. Such impairments are caused in part by polluted stormwater runoff discharged into recreational shellfish areas from upland development permitted prior to more effective stormwater quality management controls being required. Further, as shorelines erode and sea level rises, the public's ability to pass within the public trust area below the mean high water mark is lost, particularly in regions of the coast where inland migration of the mean high water is restricted by shoreline flood and erosion control structures such as groins and seawalls.

B.2.2.3.4 Coastal greenways/trails

Coastal Connecticut has few long continuous public access trails or greenways along coastal waterways due, principally, to the highly developed nature of these areas. Further complicating efforts to establish greenways along coastal waters is the highly fragmented parcel ownership patterns in the coastal area where parcel size tends to be small requiring the assembly of large numbers of parcels to create public access paths or greenways along even small segments of such waterways. The few waterfront areas where opportunities may still exist to assemble undeveloped property for greenways/trails (e.g., the Niantic River in East Lyme) are under intense development pressure. However, some communities within highly developed shoreline areas (e.g., the Mill River in Stamford and the Mystic River in Stonington/Groton) continuously evaluate opportunities to develop shoreline trails or greenways along their coastal waters as they arise through the municipal coastal site plan review process. Often such opportunities arise as waterfront property in these areas are developed or redeveloped. As such development or redevelopment occurs, waterfront public access dedications are being required through the municipal coastal site plan review process to link existing public waterfront public access areas. Municipalities are also making trail linkages through new acquisitions and recreational facilities improvements (e.g., Niantic River boardwalk). However, because greenways are linear recreational facilities, it is often difficult to assemble contiguous parcels of waterfront land since planned greenways can in reality become "fractured" or discontinuous if landowners along trail corridors do not cooperate in proposed shoreline greenway efforts. Often the only way to include such properties is to purchase them or acquire public access easement through affected properties.

C. Project Area and Conservation Targets

In order to further focus its coastal land acquisition planning efforts, Connecticut's Coastal and Estuarine Area (Figure 1) was refined to identify a CELCP Project Area. The Project Area identifies that region within the Coastal and Estuarine Area that is most likely to include Connecticut's priority coastal conservation values and areas (described in Section II. B.) and where coastal land acquisition opportunities would most likely meet national and state land acquisition project selection criteria (see Section III. C for project selection criteria). Connecticut's CELCP Project Area is shown in Figure 5. Connecticut's CELCP Project Area is defined by the municipal boundaries of Connecticut's statutorily defined 36 coastal municipalities (see CGS Section 22a-94) including governmental subdivisions therein authorized

to hold real property and the lower Connecticut River Valley Towns of Portland, East Hampton, East Haddam, Haddam, Cromwell and Middletown. (See Appendix 4 – CELCP Project Area Municipalities.) These six towns bordering the Connecticut River upstream of the Connecticut coastal boundary define the Project Area's northern limit on the Connecticut River. These towns are included within the Project Area because they capture the balance of the majority of the "core sites" designated as "wetlands of international importance" pursuant to Ramsar Convention on Wetlands of International Importance outside the Connecticut coastal boundary (See Section II.D.7. for a description of the Ramsar Convention and the Connecticut River Estuary and Tidal Wetlands Complex Ramsar Convention nomination). The 1,145 square mile CELCP Project Area comprises 55 percent of Connecticut's Coastal and Estuarine Area (2,073 square miles) and 25 percent of Connecticut's coastal watershed (4,600 square miles).

The CELCP Project Area was defined using Connecticut's "coastal ecoregions" and Ramsar wetland core site areas as a guide. Connecticut's coastal ecoregions are defined in the publication *Rare and Endangered Species of Connecticut and Their Habitats*, (Appendix 5- *Rare and Endangered Species of Connecticut and their Habitats*, CT DEP, 1976). This work defines "ecoregion" as *an area characterized by a distinctive pattern of landscapes and regional climate as expressed by the vegetation composition pattern and the presence or absence of certain indicator species and species groups. Ecoregions offer a useful means of describing and understanding the distribution and relationships of the biota and physical landscapes of Connecticut, especially so with regard to rare species.* Connecticut's eastern and western coastal ecoregions are principally defined by a vegetation composition pattern dominated by coastal hardwoods. For purposes of Connecticut's CELCP plan, these ecoregions are combined and shown as a single coastal ecoregion as depicted by the coastal ecoregion boundary in Figure 6.

Figure 5. CELCP Project Area

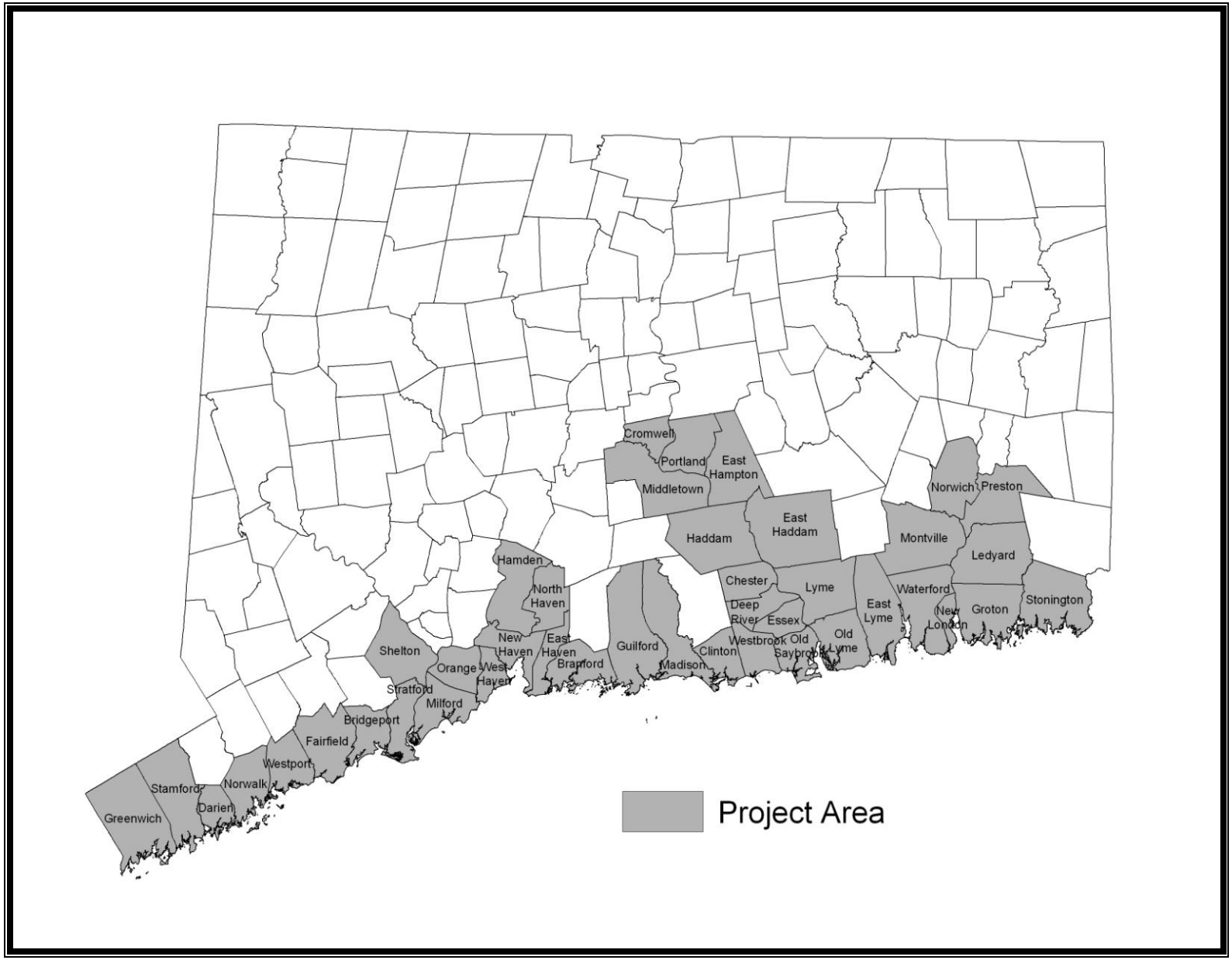
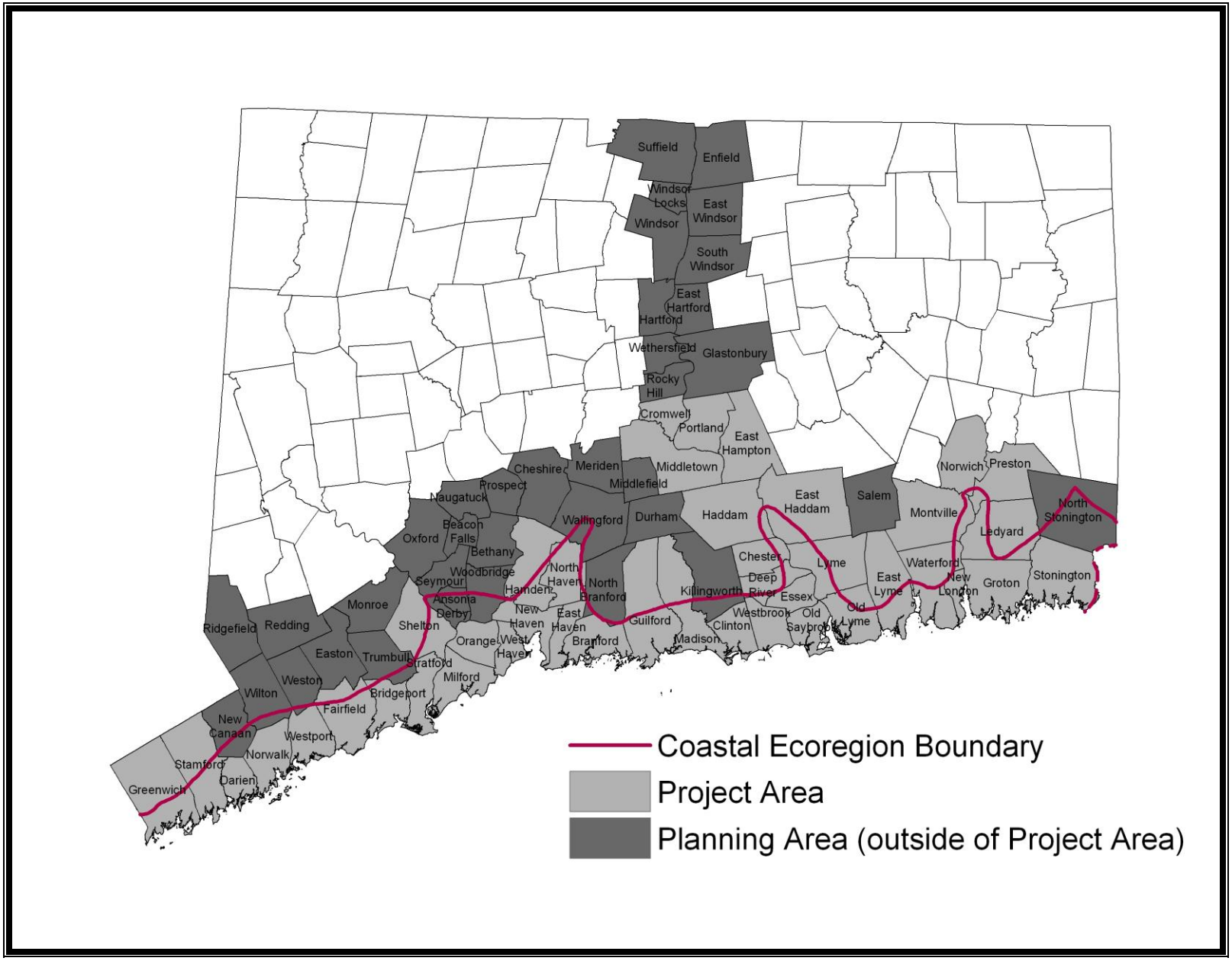


Figure 6. Connecticut Coastal Ecoregion



D. Description of Existing Plans and Studies Incorporated into the CELCP Plan

The following resource conservation and management plans, surveys and studies were consulted when drafting Connecticut's CELCP Plan either to help define Connecticut's CELCP Project Area, identify priority land conservation values or develop project selection criteria. The publications *Rare and Endangered Species of Connecticut and Their Habitats* (see Plan Section II.C. above) and *RAMSAR Nomination: Connecticut River Estuary and Tidal Wetlands Complex* (described below) was used to help define the Plan's Project Area. These plans, surveys or studies are incorporated into this CELCP Plan by reference and will be consulted to help nominate acquisition projects for review by the national CELCP project selection process.

D.1 Connecticut Statewide Comprehensive Outdoor Recreation Plan (SCORP) (2005-2010)

Connecticut's *Statewide Comprehensive Outdoor Recreation Plan,* or SCORP, (Appendix 6) identifies Connecticut's natural resource-based outdoor recreation needs and provides a blueprint for prioritizing federal and state resources to address the Plan's goals. Through the SCORP planning process, a survey of Connecticut residents was conducted to identify the most popular outdoor recreation activities. Among the top ten outdoor recreation activities that Connecticut households participated in during 2004, "beach activities" (2^{nd}) and "saltwater swimming" (4^{th}) ranked among the most popular. The most commonly cited priority action suggested by survey respondents to improve the supply and condition of recreational facilities was to acquire more open space. Properties that can accommodate water-based recreation such as swimming, boating and fishing, as well as trail-based activities, are identified as among the highest land acquisitions priorities. Priorities within these broad categories of land acquisition are targeted coastal acquisitions, private in-holdings within DEP-owned lands, properties that can support multiple uses, and properties with joint ownership and management cost-sharing potential.

D.2 The Green Plan: Guiding Land Acquisition and Protection in Connecticut 2007-2012 (The Green Plan)

The Green Plan: Guiding Land Acquisition and Protection in Connecticut 2007-2012 (see Appendix 7), is a strategic plan for land acquisition and protection for the State of Connecticut through 2012. As such, it provides general guidance for program managers, is a tool for organizations that wish to cooperate with the State in preserving land, and offers an overview for the public of the State's land acquisition and protection program. *The Green Plan* identifies criteria or factors for consideration when prioritizing potential resource protection opportunities. These criteria fall into three categories: ecological values; use needs; and location concerns.

One of the principal goals in the Green Plan is to conserve 21 percent of Connecticut's land area including 10 percent held as State-owned land with the balance held by municipalities, nonprofit land conservation organizations and water companies whose Class I and Class II watershed lands count towards the goal. The State of Connecticut's two principal land acquisition funding programs through which to accomplish the goals of the Green Plan are the: (1) Recreation and Natural Heritage Trust Program (RNHTP) and (2) Open Space and Watershed Land Acquisition Grant Program (Open Space Grant Program). The RNHTP is DEP's primary program for

acquiring land to expand the state's system of parks, forests, wildlife, and other DEP managed lands. This Program funds acquisitions of land of statewide significance representative of the State's natural and cultural heritage. Of special conservation interest are lands with unique landscape features such as rivers, ridgelines, rare natural communities, scenic qualities, historic significance, connections to other protected land and providing access to water. The Open Space Grant Program provides financial assistance to municipalities, nonprofit land conservation organizations and water companies to acquire land for many of the same purposes and to protect lands critical to protecting public water supplies.

The Green Plan includes in its list of acquisition and protection priorities several CELCP objectives including: protecting sensitive coastal resources; preserving exemplary coastal ecosystems, habitats or landscape; and enhancing coastal public access and other coastal recreational opportunities.

D.3 Coastal Land Assessment Methodology (CLAM)

Connecticut DEP has developed a coastal land acquisition planning tool called the Coastal Land Assessment Methodology (CLAM). CLAM is a municipal tax parcel based computer model that uses geographic information systems (GIS) capability to conduct spatial analysis to identify priority coastal land acquisition opportunities. The model queries tax parcel and natural resource information to identify potential coastal land opportunities based upon a parcel's size, presence of significant coastal or other natural resources attributes or proximity to existing protected land. This land acquisition-planning tool will be used to help identify coastal land acquisition opportunities for nomination to the national CELCP project selection review process (Appendix 3 provides a summary of the CLAM project's findings).

D.4 Long Island Sound Stewardship Initiative Strategy

The LIS Stewardship Initiative (LISSI) is a program of the E.P.A.'s Long Island Sound Study office developed to respond to the recommendations of the LIS Comprehensive Conservation and Management Plan to conserve the Sound's most significant ecological areas and increase public access to the Sound. The goals of the Long Island Sound Stewardship Initiative are to:

- Identify sites or site complexes with exceptional recreational and ecological value;
- Facilitate funding for permanent protection and stewardship of identified sites or complexes of sites;
- Provide site managers or owners links to technical support and assistance for improved resource stewardship;
- Link related sites to promote planning for long-term ecological health and public enjoyment of the Sound;
- Collaborate with related public and private entities to protect open space, improve the ecological health of the Sound, and increase public access and recreational opportunities around the Sound; and

- Foster voluntary partnerships to leverage limited public funds available for open space protection, public access, management, and activities designed to maintain and enhance the ecological health of the Sound.

The E.P.A.'s Long Island Sound Study formed a Stewardship Work Group to coordinate efforts to identify areas with outstanding ecological and recreational resource value and to develop a strategy to protect and enhance these important areas. The Work Group outlined a strategy for developing the Stewardship Initiative, which includes work in two phases. The first phase or planning phase is to inventory the ecological and recreational resources located throughout the Sound, identify inaugural Stewardship sites, and document the threats and opportunities at these special places. The second phase focuses on implementation of on-the-ground stewardship actions to protect or enhance the public resource values these sites provide. The Draft Long Island Sound Stewardship Initiative Strategy (Appendix 8) describes the purpose and goals of the Initiative. In order to further these efforts, supporters of the Strategy worked with Congress to help draft and pass Public Law 109-359, The Long Island Sound Stewardship Act of 2006 which authorizes up to $25 million to implement Stewardship activities.

D.5 Connecticut Coastal Recreation Access Survey

In 2004, CT DEP's Office of Long Island Sound Programs OLISP conducted a series of coastal recreation access and facilities needs surveys, the results of which are incorporated into the needs assessment section of this plan. The surveys gauged the public's coastal recreation needs and provide an improved understanding of the public's coastal recreation habits and preferences as well as demand for many of the most popular types of coastal recreation activities. The recreational activities assessed by the access surveys included: (1) saltwater angling and waterfowl hunting; (2) wildlife observation; and (3) marine boating. Approximately 1,000 surveys were distributed to targeted recreational user groups or individuals with special knowledge or interest in these coastal recreation activities (the survey response rate was 39%). Geographic data compiled as part of the survey can be used to identify and prioritize coastal land acquisition opportunities and target coastal recreation facilities improvement funds. A summary of the survey results is included in Appendix 9.

D.6 Northeast Coastal Areas Study: Significant Coastal Habitats of Southern New England and Portions of Long Island, New York (NECAS)

Northeast Coastal Areas Study: Significant Coastal Habitats of Southern New England and Portions of Long Island, New York (Appendix 10) evaluated the quality of and threats to regionally significant fish and wildlife habitat in coastal and estuarine areas of southern New England and northern and eastern Long Island. The study contains an analysis of regionally significant habitat in most need of protection to preserve natural diversity in the southern New England-New York bight ecoregion. The U.S. Fish and Wildlife Service Southern New England-New York Bight Coastal Program office, in cooperation with other federal, state, academic, and non-governmental organizations used data from NECAS to develop an inventory of Long Island Sound's most significant ecological sites pursuant to the LIS Stewardship

Initiative. NECAS will be used to identify acquisition project sites with significant coastal habitat for nomination to the national CELCP project selection review process.

D.7 RAMSAR Nomination: Connecticut River Estuary and Tidal Wetlands Complex

In 1994, the Connecticut River Estuary and Tidal River Wetlands Complex was designated "wetlands of international importance" pursuant to the Ramsar Convention on Wetlands (see Appendix 11 for a map describing the complex). The Convention on Wetlands, signed in Ramsar, Iran in 1971, is an intergovernmental treaty that provides a framework for national action and international cooperation for the conservation and wise use of wetlands. Consistent with the Ramsar Convention, primary emphasis is placed upon wetlands but in several instances sites include subtidal areas, upland riparian areas and coastal zones adjacent to these wetlands. These areas represent the complex of wetlands and tidal waters that meet the criteria for designation as "wetlands of international importance" pursuant to the Ramsar Convention (see Appendix 12 Ramsar Criteria for Inclusion). Within the Connecticut River Estuary and Tidal River Wetlands Complex Ramsar designation area, there are 20 discrete major wetland complexes, or core sites, listed in the Ramsar nomination report (see Appendix 13 Ramsar Core Sites). These Ramsar-designated cores sites will be used to help identify high priority coastal land acquisition opportunities for possible nomination to the national CELCP project selection review process.

D.8 Long Island Sound Study Habitat Restoration Initiative

The Long Island Sound Study Habitat Restoration Initiative's list of priority habitat restoration sites is also incorporated into the Connecticut's CELCP Plan (see Appendix 14 - Long Island Sound Habitat Restoration Sites) as a guide for identifying potential CELCP land acquisition sites. The Long Island Sound Study Habitat Restoration Initiative is a partnership of state, federal and non-governmental organizations working to restore habitats that support the Sound's living resources. The goals of the Initiative are to: (1) Restore the ecological functions of degraded and lost habitats; (2) restore 2000 acres and 100 river miles of habitats by 2008; and (3) use partnerships to leverage restoration funds.

D.9 Conservation and Development Policies Plan for Connecticut (2005-2010)

Conservation and Development Policies Plan for Connecticut (2005-2010) (referred to as the State Plan of C&D) is the State of Connecticut's statement of growth, resource management and public investment policies designed to guide decision-making within all State government agencies. Prepared and adopted every five years, the Plan serves principally to guide State expenditures and policy decisions regarding conservation and development. With respect to the State's objective of preserving 21% of its land area in public or private conservation ownership, the Plan provides the following policy guidance: "Develop management plans that maximize multiple uses of state-owned lands, and encourage collaborative ventures with municipal and private entities to provide, protect and manage habitat lands emphasizing" among other objectives:

- New water-based recreation sites that are consistent with other resource protection requirements;
- Maintenance and management of critical wildlife habitats, exemplary natural communities, and large forest blocks;
- Public access to Connecticut's rivers and Long Island Sound should be expanded and improved, especially in light of major, continuing public investments to restore the quality of these resources;
- Restrict additional development on offshore islands to preserve their resource and habitat value and to minimize exposure to coastal hazards
- Support state, regional, local and interstate efforts to protect and restore vital coastal habitats and resources, such as salt marshes, beaches and coves
- Access to Long Island Sound shoreline areas of highest recreational potential, with recommendations for state-first option for purchase, lease-back, easements and other incentives to maintain and increase public access to coastal areas."

Connecticut's CELCP Plan is fully consistent with the State Plan of C&D policies.

D.10 Connecticut's Comprehensive Wildlife Conservation Strategy

Connecticut's Comprehensive Wildlife Conservation Strategy (CCWCS) (Appendix 15) describes the State's 12 key habitat types, identifies species of "greatest conservation need" (GCN species), threats to these species, potential conservation actions to address identified threats and a plan implementation monitoring program to evaluate the effectiveness of conservation strategies. The most significant threats to Connecticut's GCN species habitats include: degradation, and fragmentation from development; changes in land use; and competition from non-native, invasive species. Other threats include insufficient scientific knowledge regarding wildlife and their habitats (distribution, abundance and condition); the lack of landscape-level conservation; insufficient resources to maintain or enhance wildlife habitat; and public indifference toward conservation. Connecticut's CELCP Plan can contribute to the implementation of the CCWCS through acquisition of lands or interest in lands that provide key habitat for GCN species.

D. 11 Connecticut Statewide Forest Resource Plan

The *Connecticut Statewide Forest Resource Plan* (*CTSFRP*) (Appendix 16) provides an overview for planning future activities within Connecticut forest community. The *CTSFRP* identifies the principal issues facing the long-term viability and health of Connecticut's forestlands as well as a series of action steps to address and resolve these issues over the ten-year period (2004-2013). CTSFRP implementation is overseen by the Connecticut Forestlands Council, (CFC), which represents eight committees formed around topic listed in the Plan. These committees include: Forest Ecosystem Health, Public Forest Stewardship, Private Forest Stewardship, Recreation, Sustainable Forest Based Economy, Education and Outreach, Planning and Policy, and Research.

Many of the efforts listed in the Planning and Policy section of the *CTSFRP* are consistent with and could be further by the CELCP Plan. They include: creating partnerships to accomplish

planning objectives; need for improved long-term conservation planning; and specific action steps regarding land management practices (p.30) and open space protection (p.31).

III. Implementation

A. Identification of State Lead Agency

The DEP's Office of Long Island Sound Programs (OLISP) is the lead state agency responsible for preparing and overseeing implementation of Connecticut's CELCP plan in coordination with DEP's Land Acquisition and Management (LAM) Division. DEP-OLISP administers Connecticut's federally approved coastal management program and is responsible for ensuring that state agency actions are consistent with the program. DEP-OLISP works in close coordination with DEP divisions directly managing coastal property to promote management activities that protect and restore coastal resources, and where appropriate, provide public recreation opportunities. DEP-LAM is the agency's lead division for acquiring lands to be held under DEP's custody and control. DEP-LAM also assigns management responsibility to the appropriate DEP division that will be responsible for managing newly acquired property.

B. Agencies Eligible to Hold Title to Property

CELCP Final Guidelines require that title to property, or other property interests (e.g., easements) acquired using CELCP funds be held by an eligible state agency or local government and that a permanent conservation restriction be placed on such property. Eligible agencies include DEP (the State's CELCP lead agency) and municipalities within Connecticut's Coastal and Estuarine Area (see Figure 1). Similarly, CELCP grant awards are limited to DEP although DEP may sub-award CELCP grant funds to an eligible municipality if it is more appropriate for a municipality to hold title to property acquired through CELCP. Other organizations with an interest in coastal land conservation (e.g., land trusts) not eligible to title or other property interests acquired through CELCP can play a significant role in implementing Connecticut's CELCP Plan. Such organizations are encouraged to participate by identifying potential coastal land acquisition projects for nomination to the national project selection review process. Upon acquisition of coastal land by an eligible entity through CELCP, land trusts and other land conservation organizations not eligible to hold title to land acquired using CELCP funds can continue to participate in the property's stewardship by managing lands acquired by others through CELCP. These land acquisition identification and management roles may be particularly appropriate for land trusts or other land conservation organizations since they are often most aware of local land acquisition opportunities and best positioned to manage conservation lands.

C. Land Acquisition Project Nomination Process

C.1 Identifying Coastal Land Acquisition Projects

In order to cultivate potential CECLP acquisition projects that can successfully compete in a national competition for CELCP funds, DEP will solicit projects using a two-phase project nomination selection process. This will be accomplished by first issuing a notice to "identify potential coastal land acquisition projects." The purpose of the "notice" is to begin to develop a potential "pool" of acquisition projects that meet state and national land acquisition project selection criteria issued by CT DEP and NOAA. Following this notice, a more detailed request for proposals (RFP) for CELCP land acquisition projects will be issued upon receipt of notification from NOAA that applications are being accepted for CELCP funds. This two-phase project solicitation process is proposed to help project proponents begin cultivating project proposals that address state and national project selection criteria in advance of notification from NOAA of available CELCP funding. Creating a pool of potential acquisition projects through this two-phase project solicitation process is appropriate because there will likely be insufficient time to develop competitive land acquisition project proposals if only one notice were to be issued at the date of NOAA's announcement of available CELCP funds. The first "notice to identify potential land acquisition projects" will not require project proponents to submit information describing proposed projects in order to qualify for submitting project proposal submitted pursuant to the subsequent RFP. However, project proponents will be encouraged to provide a brief summary of project proposals in order for CT DEP to provide guidance on developing a complete competitive project nomination proposal upon notification of available CELCP funds by NOAA. The subsequent RFP, issued upon notification of available CELCP grant program funds, will require detailed project information describing a proposed project's consistency with Connecticut's CELCP Plan and the state and national project evaluation review criteria. Municipalities within Connecticut's Coastal and Estuarine Area, regional planning agencies serving those municipalities and land conservation organizations registered with the Connecticut Land Conservation Council serving eligible municipalities will be notified of the RFP's issuance.

C.2 Request for Proposal Response Review and Prioritization

C.2.1 Proposal Acceptance

Responses to the RFP for land acquisition projects will be screened to determine if proposals are complete. Applicants submitting incomplete proposals will be provided a time-limited opportunity to provide all required project proposal information. Projects that propose to vest title to property with an eligible municipality must include documentation demonstrating that the municipality can provide the required non-federal acquisition matching funds. Matching funds provided in part by DEP's Open Space and Watershed Protection Grant Program must include a grant award letter documenting that such funds are being held as part of the required non-federal match. Proof of other required matching funds should include documentation of available or encumbered funds from a municipal finance committee or other verifiable sources of funds.

C.2.2 Project Proposal Review and Ranking

Complete land acquisition project proposals will be reviewed and ranked by Connecticut's CELCP Project Review Committee for consistency with the Plan's priority land conservation values according to a scoring system to be developed using the Connecticut Project Nomination Criteria in Table 6. However, in any particular year these criteria may be modified to address the current coastal land acquisition funding priorities of the CT DEP and NOAA. Current project nomination criteria will be provided as part of the RFP solicitation process. The Committee's interpretation of the criteria and their application to score project nominations will be guided by this Plan. Project proposals within Connecticut's CELCP Project Area shown in Figure 5 will be given priority in scoring the proposals. The Project Review Committee will accept and review proposals outside the CELCP Project Area that are within the Coastal and Estuarine Area only if the Committee determines that the project directly responds to a priority coastal land conservation value described in Section II. B. of the Plan and that the project would be a competitive proposal according to the state and national CELCP project scoring process. A completed Project Nomination Form (Appendix 17) must be completed for each property acquisition proposal submitted in response to the RFP. Table 7 includes a list of the current national project selection criteria that states are required to consider when nominating project proposals.

Table 6
Connecticut Project Nomination Evaluation Criteria[23]

Criteria	Maximum Potential Score	Score
(1.) General Conservation Value/Project Readiness		
Parcel size (< 10 acres; >10 acres; >25 acres; >50 acres; >100 acres)	3	
Parcel can leverage the conservation of abutting parcel(s) with high conservation value	1	
Water or tidal marsh frontage	3	
Property can be readily managed/has a dedicated management funding source	1	
Adjacent to existing protected open space	4	
Reduces potential boundary management issues of abutting protected open space	1	
Property does not require contaminant remediation per phase 1 environ. assessment	1	
Project sponsor can provide required non-federal funding match	5	
Advances a priority goal of a local watershed or area management plan	1	
Demonstrated commitment of owner to enter conservation sale negotiations	5	
Significantly reduces potential to degrade an aquatic resource (e.g., shellfish and eel grass beds) or habitat type highly-dependent on good water quality	2	
Coastal system/landscape under-represented in existing system of protected open space	4	
Significantly contributes to the conservation of a larger landscape feature of significant ecological value	2	
Proximate to existing protected open space (i.e., within 500 feet of existing protected open space property line)	1	
Subtotal	*35*	
(2.) Ecological Value		
Protects upland adjacent to rare tidal wetland plants or plant communities (e.g., freshwater tidal marsh) that would enhance the viability of these plant populations	4	
Includes exemplary LIS habitat/ecosystem type (e.g., barrier beach/dune) especially those under-represented is the State's existing system of protected open space	4	
Includes outstanding LIS habitat/ecosystem type (e.g., unditched salt marsh)	5	
Protects one or more of 12 key habitats described in *CT's Comprehensive Wildlife Conservation Strategy* (ftp://ftp.state.ct.us/pub/dep/wildlife/cwcs/CWCSCh4.pdf)	3	
Provides rare species habitat	4	
Provides habitat for GCN species described in *CT's Comprehensive Wildlife Conservation Strategy*	4	
Provides area capable accommodating upland migration of an exemplary tidal wetland system	4	
Provides habitat for species identified on the IUCN's "Red List" with a "threatened" ranking of near-threatened or greater[24]	2	

[23] Criteria weighting subject to change by Connecticut DEPCELCP Project Nomination Committee
[24] See International Union for the Conservation of Nature and Natural Resources (IUCN) Red-List at http://www.iucnredlist.org/search/search-basic

Provides/protects functional link (e.g., wildlife travel corridor) between critical habitats	3	
Enhances an ecological or recreational value of a proposed inaugural LIS Stewardship site (see http://www.longislandsoundstudy.net/stewardship/stewardship_sites.htm)	1	
Within/adjacent to recognized or identified IBA or other important bird habitat	1	
Large unfragmented block of coastal forest	3	
Protects upland adjacent to Ramsar-designated Wetlands of International Importance "core" sites (see http://training.fws.gov/library/pubs5/ramsar/web_link/sites.htm)	2	
Subtotal	*40*	
(3.) Recreational Value[25]		
Provides public access to coastal waters in a distressed municipality (see http://www.opm.state.ct.us/igp/grants/DISTRESS.HTM)	3	
Provides public access to coastal waters for boating, swimming, fishing, shellfishing or wildlife observation in an area underserved by existing public access facilities	5	
Enhances recreational use/enjoyment a designated LIS Stewardship site	4	
Part of an existing or planned recreation trail or greenway near coastal waters	5	
Demonstrated commitment of funds to improve/ready the site for public use	*3*	
Subtotal	*20*	
(4.) Other Exceptional Site/Unique Area Value		
Long Island Sound (LIS) Study Habitat Restoration Initiative site (see http://www.longislandsoundstudy.net/pubs/reports/LISSHabMap02.pdf)	1	
Historic/cultural value	1	
Outstanding geological feature (e.g., ravine)	1	
Exceptional scenic value (e.g., ridgelines)	1	
Other factors	1	
Subtotal	*5*	
Total score	100	

Table 7
National Project Selection Criteria

Criteria
(1) Protects important areas with significant ecological, recreation, historical, or aesthetic values

[25]Acquisition nominations proposed to provide recreational access opportunities must demonstrate that access will be available to the general without regard to municipal residency requirements and a commitment of funds to design and develop the site with the facilities need to support public use (e.g., parking, trails, etc.).

threatened, particularly those threatened by conversion from their natural or recreational state to other uses
(2) Lands that can be effectively managed with significant ecological value
(3) Advances the goals, objectives, or implementation of Connecticut's CELCP Plan and regional or state watershed protection plans
(4) Consistent with the Connecticut's Coastal Management Program Plan

IV. Interagency Coordination and Public Involvement

Connecticut's CELCP plan was developed in coordination with federal, state and municipal public agency officials and non-governmental organizations with expertise or special knowledge of coastal resource management issues. Members of the general public with an interest in coastal land conservation were also provided opportunities to offer their opinions on Connecticut's coastal land values and coastal land acquisition priorities.

These opinions and knowledge were collected through a series of public meetings, interviews and surveys. Two public information meetings were held to review the proposed content of the Plan and to solicit public input on the coastal land conservation issues and priorities in Connecticut. In addition, opinion surveys were sent to 66 state and municipal agencies or non-governmental organizations with an interest in coastal land conservation issues. Seventeen governmental and non-governmental organizations responded with information to help identify Connecticut's most significant land conservation needs. The coastal land conservation needs identified through this public input process were classified into public access and resource protection needs. Survey responses are summarized in Appendix 18. Public opinion assessing Connecticut's coastal land conservation needs for public access to Connecticut's shoreline for coastal recreation was also assessed through a series of public access surveys described in Section II. D. of this Plan.

Connecticut's draft CELCP Plan was posted on the CT DEP Web site for public review and comment after issuing a press on announcing its availability and participating in a radio interview describing the Plan on Connecticut Public Radio. Notice of the draft Plan's availability was sent via e-mail to approximately 75 individuals who expressed interested in reviewing the draft Plan. Twelve individuals or representatives of interested organizations provided written comments on draft the Plan. All written comments were considered and, where appropriate, incorporated into the final Plan.

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